AF

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Ravindra K. Shetty et al.

Title: SYSTEM AND METHOD FOR BUSINESS GOAL-OPTIMIZATION WHEN CUSTOMER DEMAND CANNOT BE SATISFIED

Docket No.:   H0002099.33506   Serial No.: 09/893,091
Filed: June 27, 2001   Due Date: September 4, 2006
Examiner: Peter H. Choi   Group Art Unit: 3623

MS Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
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(GENERAL)

APPEAL BRIEF UNDER 37 C.F.R. § 41.37

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For: SYSTEM AND METHOD FOR BUSINESS GOAL-OPTIMIZATION WHEN
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APPEAL BRIEF UNDER 37 CFR § 41.37

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Sir:

The Appeal Brief is presented in response to the Notice of Panel Decision from Pre-Appeal Brief Review mailed on August 4, 2006 and further in support of the Notice of Appeal to the Board of Patent Appeals and Interferences, filed on June 30, 2006, from the Final Rejection of claims 1-60 of the above-identified application, as set forth in the Final Office Action mailed on March 3, 2006.

The Commissioner of Patents and Trademarks is hereby authorized to charge Deposit Account No. 19-0743 in the amount of $500.00 which represents the requisite fee set forth in 37 C.F.R. § 41.20(b)(2). The Appellants respectfully request consideration and reversal of the Examiner's rejections of pending claims.

1. REAL PARTY IN INTEREST

The real party in interest of the above-captioned patent application is the assignee,
HONEYWELL INTERNATIONAL INC.

2. RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences known to Appellant that will have a bearing on the Board's decision in the present appeal.

3. STATUS OF THE CLAIMS

The present application was filed on June 27, 2001 with claims 1 through 60. A non-final Office Action was mailed on October 7, 2005. A Final Office Action (hereinafter "the Final Office Action") was mailed on March 3, 2006. Claims 1 through 60 stand twice rejected, remain pending, and are the subject of the present Appeal.

APPEAL BRIEF UNDER 37 C.F.R. § 41.37
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4. STATUS OF AMENDMENTS

No amendments have been made subsequent to the Final Office Action dated March 3, 2006.

5. SUMMARY OF CLAIMED SUBJECT MATTER

Some aspects of the present inventive subject matter include, but are not limited to, systems and methods of production and inventory management, and may be further directed to management of an individual customer order to maximize a profit. Accordingly, the various aspects may find application in an industry that practices production and/or delivery management.

With reference to FIG. 3, and the description starting at page 9 of the application, a method 300 includes determining 310 that one or more requests from the customer for a plurality of products (and/or services) exceeds a production capacity of a vendor. The request includes a quantity that is associated with each of the plurality of products identified in the customer order. The request is from the customer order data that originates with the customer. Method 300 also includes determining at block 320 a reduced quantity of each of the plurality of products that corresponds to a vendor maximum profit. The reduced quantity is determined from a degradation of the quantity associated with at least one of the plurality of products (and/or services), using an inverse probability of profitability. The block 320 is described in further detail in FIG. 6, and in the corresponding description beginning at page 12 and continuing at least to page 15. The method 300 may further include communicating at block 330 the reduced quantity to a production management process. This description generally corresponds to independent claim 1.

With reference now to FIG. 3 and FIG. 4, and the description starting at page 9 of the application, and continuing at least to page 11, a method 400 includes the vendor obtaining at block 410 process and inventory operation data from the vendor. The process and inventory operation data includes an inventory quantity and an inventory identity for each item, and may also include a target time for a requested delivery. An effective quantity for each of the plurality of products is determined at block 430 that determines if a requested quantity exceeds an inventory quantity. An actual time to produce all of the requested plurality of products is determined at block 440, and is compared to the target time at block 450, so that if the actual time is greater than or equal to the target time, the customer order exceeds a production capacity

of the vendor, and a graceful degradation of the production quantity is required, as shown in block 460. Block 440 is described in further detail with reference to FIG. 5, and the corresponding description beginning at page 11 and continuing to at least page 12 of the present application. This description generally corresponds to independent claim 4.

Referring now to FIG. 3, FIG. 4, FIG. 5 and in particular to FIG. 6, and the description starting at page 9, and continuing at least to page 15 of the present application, a method 600 includes determining at block 610 a time shortfall, defined as a difference between the actual time and the target time. The time shortfall is communicated to the customer at block 620. At block 640, an inverse profit probability is calculated, that reflects the portion of the total profit that will be derived from the product. A graceful decrement is determined at block 650, which is determined from the time shortfall, based upon the time short fall, the calculated inverse profit probability, and the current number of products. An objective value is updated at block 660 (as shown in Table 6 on page 14) and the actual quantity is determined at block 670 (as shown in Table 7 on page 14). An actual production time is determined at block 680, which is the summation of the objective values over the number of products (as shown in Table 2 on page 15). The foregoing description generally corresponds to independent claim 13.

Claim 19 is directed to a computer readable medium having computer-executable instructions to perform a method of production management. FIG. 1 is a block diagram of hardware and operating environment 100 that includes, *inter-alia*, a random access memory 120, a read only memory 122, and one or more mass storage devices 124, having computer-executable instructions to perform the method. The foregoing memory devices are examples of computer readable media, as described at page 6, lines 12 through 13. The method recited in claim 19 is described, at least, in pages 9 through 15, and in FIG. 3 through FIG. 6 of the present application. For example, the method 300 of FIG. 3 includes determining at block 320 a reduced quantity of each of the plurality of products. The reduced quantity is determined from a degradation of the quantity associated with at least one of the plurality of products (and/or services), using an inverse probability of profitability. The block 320 is described in further detail in FIG. 6, and in the corresponding description beginning at page 12 and continuing at least to page 15. The method 300 may further include communicating at block 330 the reduced quantity to a production management process.

Claim 22 is also directed to a computer readable medium having computer-executable instructions to perform a method of production management. FIG. 1 is a block diagram of hardware and operating environment 100 that includes, *inter-alia*, a random access memory 120, a read only memory 122, and one or more mass storage devices 124 capable of storing the executable instructions. FIG. 3 and FIG. 4, and the description starting at page 9 of the application, and continuing at least to page 11, describes a method 400 that includes the vendor obtaining, at block 410, process and inventory operation data from the vendor. The process and inventory operation data includes an inventory quantity and an inventory identity for each item, and may also include a target time for a requested delivery. An effective quantity for each of the plurality of products is determined at block 430 that determines if a requested quantity exceeds an inventory quantity. An actual time to produce all of the requested plurality of products is determined at block 440, and is compared to the target time at block 450, so that if the actual time is greater than or equal to the target time, the customer order exceeds a production capacity of the vendor, and a graceful degradation of the production quantity is required, as shown in block 460. Block 440 is described in further detail with reference to FIG. 5, and the corresponding description beginning at page 11 and continuing to at least page 12 of the present application.

Claim 31 is also directed to a computer readable medium having computer-executable instructions to perform a method of production management. FIG. 1 is a block diagram of hardware and operating environment 100 that includes, *inter-alia*, a random access memory 120, a read only memory 122, and one or more mass storage devices 124 capable of storing the executable instructions. With reference to FIG. 3, at block 310, the method 300 includes determining that at least one request exceeds a production capacity of a vendor. At block 320, a reduced quantity of each of the plurality of products is determined. With reference to FIG. 4, the method 400 further includes determining an effective quantity for each of the plurality of products that determines if a requested quantity exceeds an inventory quantity. An actual time to produce all of the requested plurality of products is determined at block 440, and is compared to the target time at block 450, so that if the actual time is greater than or equal to the target time, the customer order exceeds a production capacity of the vendor, and a graceful degradation of the production quantity is required, as shown in block 460. Block 460 is described in further

detail with reference to FIG. 5, and the corresponding description beginning at page 11 and continuing to at least page 12 of the present application.

Claim 37 is directed to a computer data signal that is representative of a sequence of instructions performing a method of production management. FIG. 3 shows, at block 310, determining that at least one request exceeds a production capacity of a vendor. At block 320, a reduced quantity of each of the plurality of products is determined. With reference to FIG. 4, the method 400 includes determining an effective quantity for each of the plurality of products that determines if a requested quantity exceeds an inventory quantity. An actual time to produce all of the requested plurality of products is determined at block 440, and is compared to the target time at block 450, so that if the actual time is greater than or equal to the target time, the customer order exceeds a production capacity of the vendor, and a graceful degradation of the production quantity is required, as shown in block 460. Block 460 is described in further detail with reference to FIG. 5, and the corresponding description beginning at page 11 and continuing to at least page 12 of the present application.

Claim 39 is directed to a computer-readable medium having a stored data structure representing a reduced quantity of a requested product quantity. FIG. 1 is a block diagram of hardware and operating environment 100 that includes, *inter-alia*, a random access memory 120, a read only memory 122, and one or more mass storage devices 124 capable of storing the data structure. With reference to FIG. 3, at block 310, the method 300 includes determining that at least one request exceeds a production capacity of a vendor. At block 320, a reduced quantity of each of the plurality of products is determined. With reference to FIG. 6, a method 600 includes determining at block 610 a time shortfall, defined as a difference between the actual time and the target time. The time shortfall is communicated to the customer at block 620. At block 640, an inverse profit probability is calculated, that reflects the portion of the total profit that will be derived from the product. A graceful decrement is determined at block 650, which is determined from the time shortfall, based upon the time short fall, the calculated inverse profit probability, and the current number of products. An objective value is updated at block 660 (and also shown in Table 6 on page 14) and the actual quantity is determined at block 670 (and also shown in Table 7 on page 14). A actual production time is determined at block 680, which is the

summation of the objective values over the number of products (as also shown in Table 2 on page 15).

Claim 43 is also directed to a computer-readable medium having a stored data structure that is operable to implement a method according to the several embodiments. FIG. 1 is a block diagram of hardware and operating environment 100 that includes, *inter-alia*, a random access memory 120, a read only memory 122, and one or more mass storage devices 124, having computer-executable instructions to implement the several embodiments of the invention. The method implemented by the computer readable medium is generally shown in block 320 of FIG. 3, and is shown in greater detail in FIG. 6. The method is described at page 9 and extending to at least page 15.

Claim 46 is directed to a system for transacting, in electronic commerce, a method according to the several embodiments of the invention. FIG. 1 generally provides a system that may be configured to implement the various embodiments of the invention. In particular, the system 100 shown in FIG. 1 includes a processor 118. The software means to execute the method is generally shown in FIGs. 3-6 in the present application.

Claim 47 is directed to a computerized apparatus for production management. FIG. 1 generally provides a system that is configured to implement the various embodiments. The apparatus may include a demand analyzer, which is generally shown in FIG. 7 of the present application, and described in detail in the written description starting at page 15, and extending at least to page 19. The apparatus also includes a graceful quantity degrader, which is provided in FIG. 7 at block 760.

Claim 49 is also directed to a computerized apparatus for production management. Again, FIG. 1 generally provides a system that is configured to implement the various embodiments. The apparatus includes an excess quantity determiner, which is generally shown in FIG. 8 of the present application at block 810. The excess quantity determiner is described in detail in the written description starting at page 15, and extending at least to page 19. The apparatus also includes a reduced quantity determiner at block 850, which is also described in detail in the written description starting at page 15 and extending to at least page 19.

Claim 52 is also directed to a computerized apparatus for production management. Yet again, FIG. 1 generally provides a system that is configured to implement the various

embodiments. The apparatus includes an excess quantity determiner, which is disclosed in FIG. 8, and is further described in detail in the written description starting at page 15 and extending to at least page 19. The excess quantity determiner is operable to determine one or more customer requests for a plurality of products that exceed a stated production capacity. The apparatus also includes a reduced quantity determiner that is operably coupled to the excess quantity determiner to yield a reduced quantity from a reduced quantity determiner, which further includes a gracefully decremented quantity determiner. The reduced quantity determiner and the gracefully decremented quantity determiner are also shown in FIG. 8, and described in detail at page 15 and extending to at least page 19.

Claim 54 is directed to a computer readable medium. FIG. 1 is a block diagram of hardware and operating environment 100 that includes, *inter-alia*, a random access memory 120, a read only memory 122, and one or more mass storage devices 124, having computer-executable instructions to implement the several embodiments of the invention. The computer readable medium further includes a demand analyzer operable to determine if a a vendor can satisfy a quantity of a customer demand for a product. This element is shown in FIG. 7 and described in detail in the written description at page 15 and extending to at least page 19. The computer readable medium further includes a graceful quantity determiner, which is shown in FIG. 10, and also described in detail at page 15 and extending to at least page 19.

Claim 56 is also directed to a computer readable medium. FIG. 1 is a block diagram of hardware and operating environment 100 that includes, *inter-alia*, a random access memory 120, a read only memory 122, and one or more mass storage devices 124, having computer-executable instructions to implement the several embodiments of the invention. The computer readable medium further includes an excess quantity determiner, shown as block 810 in FIG. 8. The medium also includes a reduced quantity determiner, shown in FIG. 8 as block 850. The excess quantity determiner and the reduced quantity determiner are described in the written description at page 15 and extending to at least page 19.

Claim 59 is directed to still another computer readable medium. FIG. 1 is a block diagram of hardware and operating environment 100 that includes, *inter-alia*, a random access memory 120, a read only memory 122, and one or more mass storage devices 124, having computer-executable instructions to implement the several embodiments of the invention. The

computer readable medium also includes an excess quantity determiner and a reduced quantity determiner that further includes a gracefully decremented quantity determiner. The excess quantity determiner and the reduced quantity determiner are described in detail at page 15 and extending to at least page 19.

This summary does not provide an exhaustive or exclusive view of the present subject matter, and Appellant refers to the appended claims and its legal equivalents for a complete statement of the invention.

6. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1-3, 11-21 and 31-60 were rejected under 35 U.S.C.§112, first paragraph, as failing to comply with the enablement requirement.

Claims 1-3, 5-8, 10, 16-17, 19-21, 23-26, 28, 30-32, 34-35, 37-41, 43-44, 46-49, 52-56 and 59-60 were rejected under 35 U.S.C.§103(a) as unpatentable over U.S. Patent No. 6,055,519 to Kennedy, *et al.,* (hereinafter "the Kennedy reference")

Claims 4, 9, 11, 15, 18, 22, 27, 29, 33, 36, 42, 45, 50, 51, 57 and 58 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the Kennedy reference as applied to claims 13, 31, 39, 43, 49 and 56, and further in view of U.S. Patent No. 5,615,109 to Eder (hereinafter "the Eder reference").

7. ARGUMENT

A.   *Summary of Arguments*

Appellants respectfully submit that the pending claims are in allowable form for various reasons as detailed in the arguments below.

B.   *Applicable Law*

1.   *35 U.S.C.§112*

In rejecting claims under 35 U.S.C.§112, first paragraph, the Examiner must determine whether the disclosure, when filed, contains sufficient information regarding the subject matter of the claims as to enable one skilled in the pertinent art to make and use the claimed invention. The Examiner has the initial burden to establish a *prima facie* case that promotes a reasonable basis to question the enablement provided for the claimed invention. *In re Wright*, 999F.2d 1557, 1562, 27USPQ2d 1510, 1513 (Fed. Cir. 1993). To overcome the prima facie case, the applicant must demonstrate by argument and/or evidence that the disclosure, as filed, would have enabled the claimed invention for one skilled in the art. If the specification discloses at least one method for using the claimed invention that bears *a reasonable correlation* to the entire scope of the claim, then the enablement requirement of 35 U.S.C.§112 is satisfied. *In re Fisher*, 427 F.2d 833, 839, 166 USPQ18, 24 (CCPA 1970). The specification need not disclose every detail for the specification to enable. Generalized descriptive material such as block diagrams and functional descriptions are permissible provided they represent conventional structure and may be determined without undue experimentation. A reasonable amount of experimentation is not fatal. *In re Wands*, 858 F.2d 731, 737, 8USPQ2d 1400,1404 (Fed.Cir.1988). See also *United States v. Telectronics, Inc.*, 857 F.2d 778, 785, 8USPQ2d 1217, 1223 (Fed. Cir. 1988).

2.   *35 U.S.C.§103(a)*

In rejecting claims under 35 U.S.C.§103(a),the Examiner bears the initial burden of establishing a *prima facie* case of obviousness. *In re Oetiker,* 977 F.2d 1443, 1445, 24

U.S.P.Q.1443, 1444 (Fed. Cir. 1992). See also *In re Piasecki*, 745 F.2d 1468, 1472, 223

U.S.P.Q. 785, 788 (Fed. Cir. 1984). The Examiner can satisfy this burden by showing some

objective teaching in the prior art, or knowledge generally available to one of ordinary skill in

the art, that suggests the claimed subject matter. *In re Fine*, 837 F.2d 1071, 1074, 5 U.S.P.Q.2d

1596, 1598 (Fed. Cir 1988). Only if this initial burden is met does the burden shift to the

Appelants to produce evidence or argument to rebut an assertion of obviousness. *Oetiker*, 977

F.2d at 1445, 24 U.S.P.Q. at 1444. See also *Piasecki*, 745 F.2d at 1472, 223 U.S.P.Q. at 788.

When determining obviousness, "the [E]xaminer can satisfy the burden of showing

obviousness of an asserted combination 'only by showing some objective teaching in the prior

art or individual to combine the relevant teachings of the references". *In re Lee*, 277 F.3d 1338,

1343, 61 USPQ2d 1430, 1434 (Fed. Cir. 2002), citing *In re Fritch*, 972 F.2d 1260, 1265, 23

USPQ2d 1780, 1783 (Fed. Cir. 1992). "Broad conclusory statements regarding the teaching of

multiple references, standing alone, are not 'evidence." *In re Dembiczak*, 175 F.3d 994, 999, 50

USPQ2d 1614, 1617. "Mere denials and conclusory statements, however, are not sufficient to

establish a genuine issue of material fact." *Dembiczak*, 175 F.3d at 999, 50 USPQ2d at 1617,

citing *McElmurry v. Arkansas Power & Light Co.*, 995 F.2d 1576, 1578, 27 USPQ2d 1129, 1131

(Fed. Cir. 1993).

The Federal Circuit also states that, "[t]he mere fact that the prior art may be modified in

the manner suggested by the Examiner does not make the modification obvious unless the prior

art suggested the desirability of the modification." *In re Fritch*, 972 F.2d 1260, 1266 n.14, 23

USPQ2d 1780, 1783-83 n.14 (Fed. Cir. 1992), citing *In re Gordon*, 733 F.2d 900, 902, 221

USEQ 1125, 1127 (Fed. Cir. 1984). In addition, the court stated in *In re Lee*, 277 F.3d 1338,

1343, 61 USPQ2d 1430, 1433 (Fed. Cir. 2002), that when making an obviousness rejection

based on combination, "there must be some motivation, suggestion or teaching of the desirability

of making the specific combination that was made by Appellants" (quoting *In re Dance*, 160

F.3d 1339, 1343, 48 USPQ2d 1635, 1637 (Fed. Cir. 1998).

3.   Official Notice.

An Examiner may rely on Official Notice of facts not in the record or to rely on common

knowledge in making a claim rejection. The standard of review applied to findings of fact is the

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"substantial evidence" standard under the Administrative Procedures Act. Official Notice unsupported by documentary evidence should only be taken by an examiner when the facts asserted to be well-known, or to be common knowledge in the art are capable of instant and unquestionable demonstration as being well-known. *In re Ahlert*, 424 F.2d 1088, 1091, 165 USPQ 418, 420 (CCPA 1970). If the applicant adequately traverses the examiner's assertion of Official Notice, the examiner must provide documentary evidence in the following action on the merits if the rejection is to be maintained. *In re Zurko*, 258 F.3d 1379, 1386, 59 USPQ2d 1693, 1697 (Fed. Cir. 2001). A general allegation that the claims define a patentable invention *without any reference* to the examiner's assertion of official notice would be inadequate. "[I]n the absence of *any* demand by appellant for the examiner to produce authority for his statement [Official Notice], we will not consider this contention." *In re Chevenard*, 139 F.2d 711, 60 USPQ 239 (CCPA 1943) (Emphasis added).

4.   *Claim Interpretation.*

During the patent examination process, the pending claims must be given the broadest reasonable interpretation consistent with the specification. *In re Hyatt*, 211 F.3d 1367, 1372, 54 USPQ2d 1664, 1667 (Fed. Cir. 2000). Terminology employed in patent claims are to be accorded their ordinary meaning, unless the text of the patent makes clear that a word was used with a special meaning. *Toro Co. v. White Consolidated Industries, Inc.,* 199 F.3d 1295, 1299, 53 USPD2d 1065, 1067 (Fed. Cir. 1999). An applicant is entitled to be his or her own lexicographer, as provided in MPEP §2111.01 (III). The applicant may define specific terms used to describe an invention, but must do so "with reasonable clarity, deliberativeness, and precision". *In re Paulsen*, 30 F.3d 1475, 1480, 31 U.S.P.Q2d 1671, 1674 (Fed. Cir 1994).

D.   *Claim Rejections in the Final Office Action*

1.   *Claims 1-3, 11-21 and 31-60 are patentable*

Claims 1-3, 11-21 and 31-60 were rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement. Applicant respectfully but strenuously disagrees. The Final Office Action indicates that the graceful decrement is "supposed to yield a

reduced number of products", and points to page 14 of the specification as reciting an equation that yields a quantity having the dimension of time. However, reading further on page 14 of the written description, one finds that the graceful decrement is used to update an objective value (t_i), which is further used to calculate an actual quantity (Q_{Ai}) as indicated at lines 32-37 on page 14. Thus, the graceful decrement is properly described in the application. Accordingly, Applicant asserts that the rejection is improper .

The Final Office Action also attempts to redefine the inverse of the probability of profit as a probability of non-profitability, and further goes on to state that the Examiner has not given weight to the claim term "inverse." (Final Office Action, page 3). The Applicant is not entirely clear on this reasoning, and is especially unclear on what the Final Office Actions means by the probability of non-profitability, and objects to the wholesale manufacture of new terminology as a part of the examination process. Notwithstanding, the Applicant respectfully submits that all of the claims recite an inverse of the probability of profit, that an example of the inverse profit probability is provided in Table 4, page 13 of the of the written description, and that the claims should be examined based on the claims and the written description, not based on any re-definitions in the Final Office Action.

The Applicant respectfully asserts that specific terms used in the written specification are defined "with reasonable clarity, deliberativeness, and precision". In particular, the term "inverse of the probability of profit" is defined with the sufficient clarity, deliberativeness, and precision that is required.

2.   *Claims 1-3, 5-8, 10, 16-17, 19-21, 23-26, 28, 30-32, 34-35, 37-41, 43-44, 46-49, 52-56 and 59-60 are patentable.*

Claims 1-3, 5-8, 10, 16-17, 19-21, 23-26, 28, 30-32, 34-35, 37-41, 43-44, 46-49, 52-56 and 59-60 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the Kennedy reference. Applicant respectfully asserts that the rejection is not valid since the Kennedy reference fails to describe or suggest at least one element of the claims. In particular, the Applicant emphasizes that the Examiner admitted in the Final Office Action that the Kennedy reference does not disclose or suggest an inverse profit probability. Applicant further maintains that this shortcoming cannot be overcome simply by putting forth a general proposition that

Kennedy inherently teaches the step of identifying the most profitable products. Accordingly, Applicant maintains that a proper *prima facie* case of obviousness has not been established for the foregoing reasons, and for the additional reasons described below

The Final Office Action further states that the Applicant has failed to adequately traverse the Examiner's Official Notice of various allegedly well-known matters, and consequently maintains that Applicant has waived any challenge to Official Notice. The Applicant respectfully disagrees with this conclusion, and further maintains that it has not waived its right to challenge the various Official Notices claimed by the Examiner. While the MPEP purports to require that an applicant state why a subject of Official Notice is not considered to be common knowledge or well-known in the art, such a procedure is not in accordance with established law. First, the case cited by the MPEP in support of this principle does not so state, and indeed suggests that an applicant may make a demand of the Examiner to produce authority for the contention in the Official Notice. (MPEP § 2144.03(C); *In re Chevenard,* 139 F.2d 711, 713, 60 USPQ 239, 241 (CCPA 1943) ("[I]n the absence of *any demand by appellant* for the examiner to produce authority for his statement, we will not consider this contention.") (*Emphasis added*). The Applicant respectfully submits that in its response to the First Office Action, it did exactly what *Chevenard* required---the Applicant requested the Examiner to provide a reference that describes the element for which the examiner is taking Official Notice. Second, to the extent that the MPEP is placing a burden on an applicant, that burden is requiring an applicant to prove a negative proposition, by "stating why the noticed fact is *not* considered to be common knowledge". The Applicant respectfully submits that it is not possible to prove that a fact is not within the common knowledge, and further submits that it is not proper to require an applicant to do so.

2.(i)   *Claims 1 and 19 are patentable.*

Claims 1 and 19 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the Kennedy reference. The Examiner admits that the Kennedy reference fails to disclose "communicating the reduced quantity to a production management process", and asserts that the step in inherently taught in Kennedy. Applicant disagrees. MPEP §2100 clearly states that: "The mere fact that a certain result or characteristic may occur or be present in the prior art is *not*

sufficient to establish the inherency of that result or characteristic..." (Emphasis added); citing *In re Rijckaert*, 9F.3d 1531, 1534, 28 USPQ2d 1955, 1957(Fed. Cir 1993). Further, "to establish inherency, the extrinsic evidence must make clear that the missing descriptive matter is *necessarily present* in the thing described in the reference" (Emphasis added). *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999). Applicant maintains that the Examiner has failed to provide a proper showing that the missing disclosure is inherently taught.

The Examiner further admits that the Kennedy reference does not teach determining the reduced quantity based upon an inverse of the probability of profit, but nevertheless concludes that the Kennedy reference implicitly teaches this by taking Official Notice of facts outside the record, which when seasonably challenged, were not substantiated. Applicant therefore maintains that the *required* a *prima facie* case of obviousness has not been made. Claims 1 and 19 are therefore allowable. Claims depending from claims 1 and 19 are also allowable based at least upon the allowability of the base claims, and further in view of the additional limitations recited in the dependent claims.

2.(ii)   *Claims 13, 31, 37 and 43 are patentable.*

Claims 13, 31, 37 and 43 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the Kennedy reference. Applicant respectfully maintains that the applied reference simply fails to disclose or suggest a step of determining an inverse profit probability. The Final Office Action asserts that the step of determining an inverse profit probability is inherently taught. In support of this assertion, the Final Office Action states that it is inherent that "the percentage of profits from a particular product...can be determined by dividing the profit of one product into the product of all profits..." and that "...the combined percentages of profitability of all products in an order must add to 100%...". Again, the Applicant simply disagrees. First, the Applicant does not agree that the foregoing observations characterize the various embodiments of the invention, and further, the Final Office Action fails to show that the missing descriptive matter is *necessarily present* in the cited reference. It is well established that inherency may not be established by possibilities, or even probabilities. Instead, "...the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the *allegedly inherent characteristic necessarily flows from the teachings of the applied prior art*." (Emphasis

added). *Ex Parte Levy*, 17 USPQ2d 1461, 1464 (Br. Pat. App & Inter. 1990). Applicant therefore again maintains that the *required* a *prima facie* case of obviousness has not been made. Claims 13, 31, 37 and 43 are therefore allowable. Claims depending from claims 13, 31, 37 and 43 are also allowable based at least upon the allowability of the base claims, and further in view of the additional limitations recited in the dependent claims.

2.(iii)   Claim 46 is patentable.

Claim 46 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the Kennedy reference. Applicant respectfully maintains that the applied reference simply fails to disclose or suggest a step of determining an inverse profit probability. The Final office Action asserts that a processor may be inherently configured to with software means for degrading the quantity of an order of a plurality of products using an inverse probability of profit function. The Final Office Action fails, however, to show how this step necessarily flows from the teachings present in the asserted reference. Applicant therefore maintains that the *required* a *prima facie* case of obviousness has not been made. Accordingly, claim 46 is allowable. Claims depending from claim 46 are also allowable, based at least upon the allowable form of claim 46, and further in view of the additional limitations recited in the dependent claims.

2.(iv)   Claims 47 and 54 are patentable.

Claims 47 and 54 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the Kennedy reference. Applicant again respectfully maintains that the applied reference simply fails to disclose or suggest the use of a inverse probability of profit function, as provided in the claims. The Final Office Action admits that the applied reference does not disclose this, but the Examiner relies on Official Notice to provide the teaching that is missing. In particular, the Examiner concludes that it is "old and well known in the manufacturing arts, that when possible, manufacturers will identify the most profitable product in a set ...enabling them to seek ways to emphasize sales of that particular item or to substitute requested products with {similar} products with higher profit margins.". Applicant again asserts that maintaining an assertion of Official Notice is improper, since Applicant seasonably objected to the asserted Official Notice. Further, as provided in MPEP 2144.04, "...any facts so noticed should be of notorious character

and *serve only to "fill in the gaps" in an insubstantial manner* which might exist in the evidentiary showing made by the Examiner to support a particular ground for rejection." (Emphasis added); citing *In re Ahlert*, 424 F.2d 1088, 165 USPQ 418 (CCPA 1970). Applicant therefore also respectfully asserts that the Examiner's Official Notice in this regard does not "fill in the gaps" in an "insubstantial manner", but rather is directed to particular inventive aspects of the various embodiments. Applicant therefore maintains that the *required a prima facie* case of obviousness has not been made. Accordingly, claims 47 and 54 are allowable. Claims depending from claims 47 and 54 are also allowable, based at least upon the allowable form of claims 47 and 54, and further in view of the additional limitations recited in the dependent claims.

2.(v).   *Claims 49 and 56 are patentable.*

Claims 49 and 56 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the Kennedy reference. Applicant again respectfully maintains that the applied reference simply fails to disclose or suggest the use of a inverse probability of profit function, as provided in the claims. In particular, the Examiner admits in the Final Office Action that the use of a inverse probability of profit function is not disclosed, but takes Official Notice that includes various assertions claiming to provide the necessary teaching. Applicant again asserts that maintaining an assertion of Official Notice is improper in the present instance, since Applicant seasonably objected to the asserted Official Notice. Applicant therefore maintains that the *required a prima facie* case of obviousness has not been made. Claims 49 and 56 are therefore allowable. Claims depending from claims 49 and 56 are also allowable, based at least upon the allowable form of claims 49 and 56, and further in view of the additional limitations recited in the dependent claims.

2.(vi).   *Claim 39 is patentable.*

Claim 39 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the Kennedy reference. Applicant again respectfully maintains that the applied reference simply fails to disclose or suggest the use of a inverse probability of profit function, as provided in the claims. In particular, the Examiner admits in the Final Office Action that the use of a inverse probability of profit function is not disclosed, but takes Official Notice that includes various assertions

claiming to provide the necessary teaching. Applicant again asserts that maintaining an assertion of Official Notice is improper in the present instance, since Applicant seasonably objected to the asserted Official Notice. This notwithstanding, the Applicant nevertheless notes that the Examiner provides in his Official Notice, that "...manufacturers will identify the most profitable product in a set...enabling them...to *substitute requested products with {similar} products* with higher profit margins.". (Emphasis added). Applicant simply cannot understand how the Examiner's foregoing observation applies to the Applicants' inventive process. Applicant makes no claim that products are substituted for other products as part of the inventive process. Applicant therefore further maintains that the Official Notice is improper, and that the subject matter of the alleged Official Notice is not pertinent in any event. Applicant therefore maintains that the *required* a *prima facie* case of obviousness has not been made. Claims 39 is therefore allowable. Claims depending from claim 39 is also allowable, based at least upon the allowable form of claim 39, and further in view of the additional limitations recited in the dependent claims.

2.(vii). Claims 52 and 59 are patentable.

Claims 52 and 59 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the Kennedy reference. Applicant again respectfully maintains that the applied reference simply fails to disclose or suggest the use of a inverse probability of profit function, as provided in the claims. As best understood, the Examiner admits in the Final Office Action that the use of a inverse probability of profit function is not disclosed, but takes Official Notice that again includes that "...manufacturers will identify the most profitable product in a set...enabling them...to *substitute requested products with {similar} products* with higher profit margins.". (Emphasis added). Applicant again cannot understand how the Examiner's foregoing observation applies to the Applicants' inventive process. Applicant makes no claim that products are substituted for other products as part of the inventive process. Applicant therefore further maintains that the Official Notice is improper, and that the subject matter of the alleged Official Notice is not pertinent in any event. Applicant therefore maintains that the *required* a *prima facie* case of obviousness has not been made. Claims 52 and 59 are therefore allowable. Claims depending from claims 52 and 59 are also allowable, based at least upon the allowable

form of claims 52 and 59, and further in view of the additional limitations recited in the dependent claims.

3.   *Claims 4, 9, 11, 15, 18, 22, 27, 29, 33, 36, 42, 45, 50, 51, 57 and 58 are patentable.*

Claims 4, 9, 11, 15, 18, 22, 27, 29, 33, 36, 42, 45, 50, 51, 57 and 58 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the Kennedy reference as applied to claims 13, 31, 39, 43, 49 and 56, and further in view of the Eder reference.

Applicant has clearly argued above that the description in the Kennedy reference does not disclose, teach, or suggest in any motivated way, the inverse of the profitability of product. Applicant also asserts that the description in the Eder reference fails to remedy the disclosure missing from the Eder reference. Applicant further maintains that the Examiner has not properly shown that a motivation to combine the asserted references exists, by identifying at least one motivation obtained from one of the applied references. Applicant therefore maintains that a *prima facie* case of obviousness has not been established with respect to the claims 4, 9, 11, 15, 18, 22, 27, 29, 33, 36, 42, 45, 50, 51, 57 and 58 at least for these reasons, and for the additional reasons described below. In particular, independent claims 4 and 22 are clearly allowable. Claims depending from claims 4 and 22 are also allowable, based at least upon the allowable form of claims 4 and 22, and further in view of the additional limitations recited in the dependent claims.

3.(i).   *Claims 4 and 22 are patentable.*

Claims 4 and 22 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the Kennedy reference, and further in view of the Eder reference. In the Final Office Action, the Examiner admits that the Kennedy reference does not teach determining the reduced quantity based upon an inverse profit probability, but nevertheless asserts that the foregoing step is implicitly taught. In the Final Office Action, however, the Examiner fails to cite where the implicit teaching allegedly occurs. Moreover, in the Final Office Action, the Examiner takes Official Notice that "manufacturers will identify the most profitable product in a set...enabling them...to *substitute requested products with {similar} products* with higher profit margins.". (Emphasis added). Applicant fails to understand how the Examiner's foregoing observation

applies to the Applicants' inventive process. Applicant makes no claim that products are substituted for other products as part of the inventive process. Applicant therefore further maintains that the Official Notice is improper, and that the subject matter of the alleged Official Notice is not pertinent in any event. Applicant also asserts that the Eder reference fails to provide the teaching missing from the Kennedy reference. Applicant therefore maintains that the *required* a *prima facie* case of obviousness has not been made. Claims 4 and 22 are therefore allowable. Claims depending from claims 4 and 22 are also allowable, based at least upon the allowable form of claims 4 and 22, and further in view of the additional limitations recited in the dependent claims.

8. SUMMARY

For the reasons argued above, Applicant maintains that claims 1-3, 11-21 and 31-60 were not properly rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement. Applicant maintain that the terminology used in the written description, including the term "inverse of the probability of profit" is defined with the sufficient clarity, deliberativeness, and precision that is required.

The Applicant further maintains that claims 1-3, 5-8, 10, 16-17, 19-21, 23-26, 28, 30-32, 34-35, 37-41, 43-44, 46-49, 52-56 and 59-60 were not properly rejected under 35 U.S.C. § 103(a) as being unpatentable over the Kennedy reference. Applicant respectfully asserts that the rejection is not valid since the Kennedy reference fails to describe or suggest at least one element of the claims. In the Final Office Action, the Examiner asserted that the missing disclosure was provided by Official Notice, inherency, and various claims that the teaching is implicitly taught in the Kennedy reference. Applicant properly responded to the Examiner's statement of Official Notice in Applicant's response to the non-final action, whereupon Examiner failed to provide proper showing.

The Applicant also maintains that claims 4, 9, 11, 15, 18, 22, 27, 29, 33, 36, 42, 45, 50, 51, 57 and 58 were not properly rejected under 35 U.S.C. § 103(a) as being unpatentable over the Kennedy reference as applied to claims 13, 31, 39, 43, 49 and 56, and further in view of the Eder reference. Applicant respectfully asserts that the rejection is not valid since the Kennedy reference fails to describe or suggest at least one element of the claims. The Eder reference also fails to provide the required teaching. Moreover, in the Final Office Action, the Examiner asserted that the missing disclosure was provided by Official Notice, inherency, and various claims that the teaching is implicitly taught in the Kennedy reference. Applicant properly responded to the Examiner's statement of Official Notice in Applicant's response to the non-final action, whereupon Examiner failed to provide proper showing.

APPEAL BRIEF UNDER 37 C.F.R. § 41.37
Serial Number: 09/893,091
Filing Date: June 27, 2001
Title: SYSTEM AND METHOD FOR BUSINESS GOAL-OPTIMIZATION WHEN CUSTOMER DEMAND CANNOT BE SATISFIED

Page 26
Dkt: H0002099.33506

Reversal of the foregoing rejections and allowance of all pending claims is therefore respectfully requested.

Respectfully submitted,

RAVINDRA K. SHETTY et al.
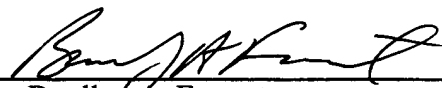
By their Representatives,

SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.
P.O. Box 2938
Minneapolis, MN 55402
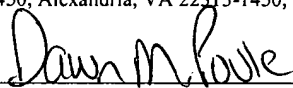
Date _____9-5-2006_____ By _____

Bradley A. Forrest
Reg. No. 30,837

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Mail Stop Appeal Brief, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 5th day of September 2006.

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Name

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Signature

CLAIMS APPENDIX

1.   A computerized method for production management comprising:
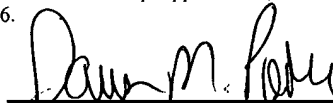
determining a reduced quantity of a requested product quantity in a customer order in

reference to the inverse of the probability of profit of the product; and

communicating the reduced quantity to a production management process.

2.   The computerized method of claim 1, wherein the determining further comprises:

iteratively determining a graceful reduction of the requested product quantity from a time

shortfall, from the inverse profit probability, and from a reduced number of

plurality of products, until the customer accepts the reduced quantity or until the

time shortfall is non-existent.

3.   The computerized method of claim 1, the method further comprising:

determining that the requested product quantity can not be satisfied within a customer

target time period.

4.   A computerized method for production management comprising:

(a)   determining that at least one request for a plurality of products exceeds a

production capacity of a vendor, wherein the request for a plurality of products

includes a quantity associated with each of the plurality of products from process

and inventory operation data and from customer order data; and

(b)   determining a quantity of each of the plurality of products corresponding to a

vendor maximum profit of the requests for a plurality of products, from a

degradation of the quantity associated with at least one of the plurality of products

as a function of the inverse of the probability of profit from the product.

5.   The computerized method of claim 4, the method further comprising:

(c)   communicating the quantity of each of the plurality of products corresponding to

a maximum vendor profit of the requests for a plurality of products.

6.   The computerized method of claim 4, wherein the determining (a) further comprises:

(a)(1)   obtaining process and inventory operation data, the data further comprising an

inventory quantity for each of the plurality of products;

(a)(2)   obtaining customer order data; the data further comprising an identification of

each of the plurality of products, a requested quantity of each of the plurality of

products, and an associated target time of each of the plurality of requested

products;

(a)(3)   determining an effective quantity for each of the plurality of products to be

produced from the requested quantity of each of the plurality of products and

from the inventory quantity for each of the plurality of products;

(a)(4)   determining an actual time to produce all of the plurality of products to be

produced, from the effective quantity for each of the plurality of products to be

produced; and

(a)(5)   determining that at least one request for a plurality of products exceeds a

production capacity of a vendor, from the effective quantity of the at least one of

the plurality of products, from the requested quantity of the at least one of the

plurality of products, and from the target time of the at least one of the plurality of

products.

7.   The computerized method of claim 6, wherein the obtaining (a)(1) action is performed
after the obtaining (a)(2) action.

8.   The computerized method of claim 6, wherein the determining (a)(5) further comprises:

(a)(5)(i)   determining that at least one request for a plurality of products exceeds a

production capacity of a vendor beyond a predetermined margin.

9.   The computerized method of claim 6, wherein the determining (a)(5) further comprises:

(a)(5)(i) determining a batch objective value for producing and delivering each of the plurality of products, from the effective quantity of the at least one of the plurality of products, from the requested quantity of the at least one of the plurality of products;

(a)(5)(ii) determining the total production time of the plurality of products from the batch objective value of each of the plurality of products; and

(a)(5)(iii) comparing the target time to the total production time of the plurality of products.

10. The computerized method of claim 8, wherein the predetermined margin further comprises a predetermined absolute quantity margin.

11. The computerized method of claim 4, wherein determining (b) for each product in the order, further comprises:

determining that at least one request for a plurality of products exceeds a production capacity of a vendor beyond a predetermined margin;

(b)(1) determining a time shortfall in the production of each of the plurality of products from actual time to produce all of the plurality of products to be produced, and from the target time;

(b)(2) communicating to the customer each of the time shortfalls;

(b)(3) receiving from the customer information representing reduction in the quantity associated with at least one of the plurality of products;

(b)(4) determining a profit probability from the profit of a production of one of the plurality of products in the customer order, and from the profit of all of the plurality of products in the customer order;

(b)(5) determining a graceful decrement from the time shortfall, from the profit probability, and from a decremented number of plurality of products;

(b)(6) updating the objective value from the graceful decrement;

(b)(7) determining the actual quantity to be produced for each of the plurality of products, from the graceful decrement, and from a unit time of manufacture; and

(b)(8)   determining an actual time to produce all of the plurality of products to be produced, from the actual quantity to be produced for each of the plurality of products.

12.   The computerized method of claim 11, wherein determining (b)(4), further comprises:

(b)(4)(i)   dividing the profit of a production of one of the plurality of products in the customer order into the profit of all of the plurality of products in the customer order, yielding a portion of total profit attributable to the one product ; and

(b)(4)(ii)   determining a profit probability from the portion of total profit attributable to the one product subtracted from (b)(4)(i)

13.   A computerized method for production management comprising:

(a)   determining that at least one request for a plurality of products exceeds a production capacity of a vendor, wherein the request for a plurality of products includes a quantity associated with each of the plurality of products from process and inventory operation data

(b)   determining an inverse profit probability from the profit of a production of one of the plurality of products in the request, and from the profit of all of the plurality of products in the customer order;

(c)   determining a graceful decrement from the time shortfall, from the inverse profit probability, and from a decremented number of plurality of products;

(d)   updating the objective value from the graceful decrement;

(e)   determining the actual quantity to be produced for each of the plurality of products, from the graceful decrement ; and

(f)   determining an actual time to produce all of the plurality of products to be produced, from the actual quantity to be produced for each of the plurality of products.

14.   The computerized method of claim 13, wherein the determining (a) further comprises:

(a)(1) determining that at least one request for a plurality of products exceeds a production capacity of a vendor beyond a predetermined margin, from the effective quantity of the at least one of the plurality of products, from the requested quantity of the at least one of the plurality of products, and from the target time of the at least one of the plurality of products.

15. The computerized method of claim 14, wherein the determining (a)(1) further comprises:

(a)(1)(i) determining a batch objective value for producing and delivering each of the plurality of products, from the effective quantity of the at least one of the plurality of products, from the requested quantity of the at least one of the plurality of products;

(a)(1)(ii) determining the total production time of the plurality of products from the batch objective value of each of the plurality of products; and

(a)(1)(iii) comparing the target time to the total production time of the plurality of products.

16. The computerized method of claim 14, wherein the determining (a)(1) further comprises:

(a)(1)(i) obtaining process and inventory operation data, the data further comprising an inventory quantity for each of the plurality of products;

(a)(1)(ii) obtaining customer order data; the data further comprising an identification of each of the plurality of products, a requested quantity of each of the plurality of products, and an associated target time of each of the plurality of requested products;

(a)(1)(iii) determining an effective quantity for each of the plurality of products to be produced from the requested quantity of each of the plurality of products and from the inventory quantity for each of the plurality of products; and

(a)(1)(iv) determining an actual time to produce all of the plurality of products to be produced, from the effective quantity for each of the plurality of products to be produced.

17.   The computerized method of claim 14, wherein the predetermined margin further comprises an absolute quantity margin.

18.   The computerized method of claim 13, wherein the method further comprises:

   (g)   determining a time shortfall in the production of each of the plurality of products from actual time to produce all of the plurality of products to be produced, and from the target time;

   (h)   communicating to the customer each of the time shortfalls; and

   (i)   receiving from the customer information representing a reduction in the quantity associated with at least one of the plurality of products.

19.   A computer-readable medium having computer-executable instructions to cause a computer to perform a method for production management comprising:

   determining a reduced quantity of a requested product quantity in a customer order in reference to the inverse of the probability of profit of the product; and

   communicating the reduced quantity to a production management process.

20.   The computer-readable medium of claim 19, wherein the determining further comprises:

   iteratively determining a graceful reduction of the requested product quantity from a time shortfall, from the inverse profit probability, and from a reduced number of plurality of products, until the customer accepts the reduced quantity or until the time shortfall is non-existent.

21.   The computer-readable medium of claim 19, the method further comprising:

   determining that the requested product quantity can not be satisfied within a customer target time period.

22.   A computer-readable medium having computer-executable instructions to cause a computer to perform a method for production management comprising:

(a)   determining that at least one request for a plurality of products exceeds a production capacity of a vendor, wherein the request for a plurality of products includes a quantity associated with each of the plurality of products from process and inventory operation data and from customer order data; and

(b)   determining a quantity of each of the plurality of products corresponding to a vendor maximum profit of the requests for a plurality of products, from a degradation of the quantity associated with at least one of the plurality of products as a function of the inverse of the probability of profit from the product.

23.   The computer-readable medium of claim 22, the method further comprising:

(c)   communicating the quantity of each of the plurality of products corresponding to a maximum vendor profit of the requests for a plurality of products.

24.   The computer-readable medium of claim 22, wherein the determining (a) further comprises:

(a)(1)   obtaining process and inventory operation data, the data further comprising an inventory quantity for each of the plurality of products;

(a)(2)   obtaining customer order data; the data further comprising an identification of each of the plurality of products, a requested quantity of each of the plurality of products, and an associated target time of each of the plurality of requested products;

(a)(3)   determining an effective quantity for each of the plurality of products to be produced from the requested quantity of each of the plurality of products and from the inventory quantity for each of the plurality of products;

(a)(4)   determining an actual time to produce all of the plurality of products to be produced, from the effective quantity for each of the plurality of products to be produced; and

(a)(5)   determining that at least one request for a plurality of products exceeds a production capacity of a vendor, from the effective quantity of the at least one of the plurality of products, from the requested quantity of the at least one of the

plurality of products, and from the target time of the at least one of the plurality of products.

25.   The computer-readable medium of claim 24, wherein the obtaining (a)(1) action is performed after the obtaining (a)(2) action.

26.   The computer-readable medium of claim 24, wherein the determining (a)(5) further comprises:

(a)(5)(i)   determining that at least one request for a plurality of products exceeds a production capacity of a vendor beyond a predetermined margin.

27.   The computer-readable medium of claim 24, wherein the determining (a)(5) further comprises:

(a)(5)(i)   determining a batch objective value for producing and delivering each of the plurality of products, from the effective quantity of the at least one of the plurality of products, from the requested quantity of the at least one of the plurality of products;

(a)(5)(ii)   determining the total production time of the plurality of products from the batch objective value of each of the plurality of products; and

(a)(5)(iii)   comparing the target time to the total actual production time of the plurality of products.

28.   The computer-readable medium of claim 24, wherein the predetermined margin further comprises a predetermined absolute quantity margin.

29.   The computer-readable medium of claim 22, wherein determining (b) for each product in the order, further comprises:

(b)(1)   determining a time shortfall in the production of each of the plurality of products from actual time to produce all of the plurality of products to be produced, and from the target time;

(b)(2) communicating to the customer each of the time shortfalls;

(b)(3) receiving from the customer information representing reduction in the quantity associated with at least one of the plurality of products;

(b)(4) determining a profit probability from the profit of a production of one of the plurality of products in the customer order, and from the profit of all of the plurality of products in the customer order;

(b)(5) determining a graceful decrement from the time shortfall, from the profit probability, and from a decremented number of plurality of products;

(b)(6) updating the objective value from the graceful decrement;

(b)(7) determining the actual quantity to be produced for each of the plurality of products, from the graceful decrement; and

(b)(8) determining an actual time to produce all of the plurality of products to be produced, from the actual quantity to be produced for each of the plurality of products.

30.   The computer-readable medium of claim 29, wherein determining (b)(4), further comprises:

(b)(4)(i)   dividing the profit of a production of one of the plurality of products in the customer order into the profit of all of the plurality of products in the customer order, yielding a portion of total profit attributable to that one product ; and

(b)(4)(ii) determining a profit probability from the portion of total profit attributable to the one product subtracted from (b)(4)(i)

31.   A computer-readable medium having computer-executable instructions to cause a computer to perform a method for production management comprising:

(a)   determining that at least one request for a plurality of products exceeds a production capacity of a vendor, wherein the request for a plurality of products includes a quantity associated with each of the plurality of products from process and inventory operation data

(b)   determining an inverse profit probability from the profit of a production of one of

the plurality of products in the request, and from the profit of all of the plurality of

products in the customer order;

(c)   determining a graceful decrement from the time shortfall, from the profit

probability, and from a decremented number of plurality of products;

(d)   updating the objective value from the graceful decrement;

(e)   determining the actual quantity to be produced for each of the plurality of

products, from the graceful decrement; and

(f)   determining an actual time to produce all of the plurality of products to be

produced, from the actual quantity to be produced for each of the plurality of

products.

32.   The computer-readable medium of claim 31, wherein the determining (a) further
comprises:

(a)(1) determining that at least one request for a plurality of products exceeds a

production capacity of a vendor beyond a predetermined margin, from the

effective quantity of the at least one of the plurality of products, from the

requested quantity of the at least one of the plurality of products, and from the

target time of the at least one of the plurality of products.

33.   The computer-readable medium of claim 32, wherein the determining (a)(1) further
comprises:

(a)(1)(i)   determining a batch objective value for producing and delivering each of

the plurality of products, from the effective quantity of the at least one of

the plurality of products, from the requested quantity of the at least one of

the plurality of products;

(a)(1)(ii)   determining the total production time of the plurality of products from the

batch objective value of each of the plurality of products; and

(a)(1)(iii)   comparing the target time to the total production time of the plurality of

products.

34.   The computer-readable medium of claim 32, wherein the determining (a)(1) further comprises:

       (a)(1)(i)   obtaining process and inventory operation data, the data further comprising an inventory quantity for each of the plurality of products;

       (a)(1)(ii)   obtaining customer order data; the data further comprising an identification of each of the plurality of products, a requested quantity of each of the plurality of products, and an associated target time of each of the plurality of requested products;

       (a)(1)(iii)   determining an effective quantity for each of the plurality of products to be produced from the requested quantity of each of the plurality of products and from the inventory quantity for each of the plurality of products; and

       (a)(1)(iv)   determining an actual time to produce all of the plurality of products to be produced, from the effective quantity for each of the plurality of products to be produced.

35.   The computer-readable medium of claim 32, wherein the predetermined margin further comprises an absolute quantity margin.

36.   The computer-readable medium of claim 31, wherein the method further comprises:

       (g)   determining a time shortfall in the production of each of the plurality of products from actual time to produce all of the plurality of products to be produced, and from the target time;

       (h)   communicating to the customer each of the time shortfalls; and

       (i)   receiving from the customer information representing a reduction in the quantity associated with at least one of the plurality of products.

37.   A computer data signal embodied in a carrier wave and representing a sequence of instructions which, when executed by a processor, cause the processor to perform the method of:

(a)   determining that at least one request for a plurality of products exceeds a
         production capacity of a vendor, wherein the request for a plurality of products
         includes a quantity associated with each of the plurality of products from process
         and inventory operation data;

(b)   determining an inverse profit probability from the profit of a production of one of
         the plurality of products in the request, and from the profit of all of the plurality of
         products in the customer order;

(c)   determining a graceful decrement from the time shortfall, from the inverse profit
         probability, and from a decremented number of plurality of products;

(d)   updating the objective value from the graceful decrement;

(e)   determining the actual quantity to be produced for each of the plurality of
         products, from the graceful decrement, and from the unit time of manufacture;
         and

(f)   determining an actual time to produce all of the plurality of products to be
         produced, from the actual quantity to be produced for each of the plurality of
         products.

38.   The computer data signal of claim 37, wherein the determining (a) further comprises:

(a)(1) determining that at least one request for a plurality of products exceeds a
         production capacity of a vendor beyond a predetermined margin, from the
         effective quantity of the at least one of the plurality of products, from the
         requested quantity of the at least one of the plurality of products, and from the
         target time of the at least one of the plurality of products.

39.   A computer-readable medium having stored thereon an data structure representing a
reduced quantity of a requested product quantity produced by a method comprising:

         determining that the quantity of the requested product can not be satisfied by a vendor
                  within a customer target time period; and

         iteratively determining a graceful reduction of the requested product quantity from a time
                  shortfall, from the inverse profit probability, and from a reduced number of

plurality of products, until the customer accepts the reduced quantity or until the

time shortfall is non-existent.

40.   The computer-readable medium of claim 39, produced by the method further comprising:

communicating the reduced quantity to a vendor production process.

41.   The computer-readable medium of claim 39, wherein the determining further comprises:

determining that at least one request for a plurality of products exceeds a production

capacity of the vendor beyond a predetermined margin.

42.   The computer-readable medium of claim 39, wherein the determining further comprises:

determining a time shortfall in the production of each of the plurality of products from

actual time to produce all of the plurality of products to be produced, and from the

target time;

communicating to the customer each of the time shortfalls;

receiving from the customer information representing reduction in the quantity associated

with at least one of the plurality of products;

determining an inverse profit probability from the profit of a production of one of the

plurality of products in the customer order, and from the profit of all of the

plurality of products in the customer order;

determining a graceful decrement from the time shortfall, from the <u>inverse</u> profit

probability, and from a decremented number of plurality of products;

updating the objective value from the graceful decrement;

determining the actual quantity to be produced for each of the plurality of products, from

the graceful decrement, and from the unit time of manufacture; and

determining an actual time to produce all of the plurality of products to be produced,

from the actual quantity to be produced for each of the plurality of products.

43.   A computer-readable medium having stored thereon an data structure representing a

reduced quantity of a requested product quantity produced by a method comprising:

(a)   determining that at least one request for a plurality of products exceeds a production capacity of a vendor, wherein the request for a plurality of products includes a quantity associated with each of the plurality of products from process and inventory operation data

(b)   determining an inverse profit probability from the profit of a production of one of the plurality of products in the request, and from the profit of all of the plurality of products in the customer order;

(c)   determining a reduced quantity from the time shortfall, from the <u>inverse</u> profit probability, and from a decremented number of plurality of products;

(d)   updating the objective value from the reduced quantity;

(e)   determining the actual quantity to be produced for each of the plurality of products, from the reduced quantity, and from the unit time of manufacture; and

(f)   determining an actual time to produce all of the plurality of products to be produced, from the actual quantity to be produced for each of the plurality of products.

44.   The computer-readable medium of claim 43, wherein the determining (a) further comprises:

(a)(1) determining that at least one request for a plurality of products exceeds a production capacity of a vendor beyond a predetermined margin, from the effective quantity of the at least one of the plurality of products, from the requested quantity of the at least one of the plurality of products, and from the target time of the at least one of the plurality of products.

45.   The computer-readable medium of claim 43, wherein the method further comprises:

(g)   determining a time shortfall in the production of each of the plurality of products from actual time to produce all of the plurality of products to be produced, and from the target time;

(h)   communicating to the customer each of the time shortfalls; and

(i)   receiving from the customer information representing reduction in the quantity

associated with at least one of the plurality of products.

46.   A system for transacting in electronic commerce comprising:

a processor; and

software means operative on the processor for degrading the quantity of an order of a

plurality of products using an inverse probability of profit function in reference to

profits from each of the products in the order.

47.   A computerized apparatus for production management comprising:

a demand analyzer, that determines if a vendor can satisfy a quantity of customer demand

for a product, from a database of process and inventory operation data and from a

database of customer order data; and

a graceful quantity degrader, operably coupled to the demand analyzer, that yields a

degraded quantity from the quantity of customer demand using an inverse

probability of profit function.

48.   The computerized apparatus of claim 47, wherein the graceful quantity degrader yields
the degraded quantity for each of the products that the customer indicated a reduced quantity
thereof, from a time shortfall, the inverse probability of profit, and from a decremented number
of plurality of products of the customer order.

49.   A computerized apparatus for production management comprising:

an excess quantity determiner, that determines that one or more customer requests for a

plurality of products, exceed a production capacity of the vendor within a

prescribed time period; and

a reduced quantity determiner, operably coupled to the excess quantity determiner, that

yields a reduced quantity, from an inverse probability of profit of the reduced

quantity.

50.   The computerized apparatus of claim 49, wherein the excess quantity determiner further comprises:

> a determiner of batch objective values, from an effective quantity of at least one product
>> identified in the request, and from the corresponding production speed of each of
>> a plurality of product batches in the request;
>
> a determiner of actual total production time of the at least one products in the request,
>> from the sum of the batch objective values; and
>
> a determiner of a production time shortfall, from the actual total production time, and a
>> target production time, wherein the production shortfall indicates an excess
>> quantity.

51.   The computerized apparatus of claim 49, wherein the reduced quantity determiner further comprises:

> an inverse profit probability determiner, wherein the inverse profit probability is
>> determined from a projected profit of a product in a customer order, and from the
>> profit of the entire customer order;
>
> a gracefully-decremented quantity determiner, operably coupled to the inverse profit
>> probability determiner, wherein the gracefully-decremented quantity is
>> determined for each of the products that the customer indicated a reduced
>> quantity, and determined from a time shortfall, the inverse profit probability, and
>> from a decremented number of plurality of products;
>
> an objective-value determiner, operably coupled to the gracefully-decremented quantity
>> determiner, wherein the objective-value is determined for each product in the
>> customer order from the gracefully-decremented quantity, and from the previous
>> objective value;
>
> an actual-quantity determiner, operably coupled to the objective-value determiner,
>> wherein the actual-quantity is determined from the objective-value, a production
>> speed of the product, and from the inventory quantity of the product; and

a total-production-time determiner, operably coupled to the actual-quantity determiner,

wherein the total-production-time is determined as the sum of objective value of

each product.

52.   A computerized apparatus for production management comprising:

an excess quantity determiner, that determines that one or more customer requests for a

plurality of products exceed a production capacity of the vendor within a

prescribed time period;

a reduced quantity determiner, operably coupled to the excess quantity determiner, that

yields a reduced quantity, from an inverse probability of profit of the reduced

quantity, wherein the reduced quantity determiner further comprises:

a gracefully-decremented quantity determiner, yielding a reduced quantity,

operably coupled to the inverse profit probability determiner,

wherein the gracefully-decremented quantity is determined for

each of the products that the customer indicated a reduced

quantity, and determined from a time shortfall, the inverse

probability of profit, and from a decremented number of plurality

of products.

53.   The computerized apparatus of claim 52, wherein the inverse profit probability is

determined from a projected profit of a product in the customer request, and from the profit of

the entire customer request.

54.   A computer-readable medium comprising:

a demand analyzer, that determines if a vendor can satisfy a quantity of customer demand

for a product, from a database of process and inventory operation data and from a

database of customer order data; and

a graceful quantity degrader, operably coupled to the demand analyzer, that yields a

degraded quantity from the quantity of customer demand using an inverse

probability of profit function

55.   The computer-readable medium of claim 54, wherein the graceful quantity degrader

yields the degraded quantity for each of the products that the customer indicated a reduced

quantity thereof, from a time shortfall, the inverse probability of profit, and from a decremented

number of plurality of products of the customer order.

56.   A computer-readable medium comprising:

an excess quantity determiner, that determines that one or more customer requests for a

plurality of products, exceed a production capacity of the vendor within a

prescribed time period; and

a reduced quantity determiner, operably coupled to the excess quantity determiner, that

yields a reduced quantity, from an inverse probability of profit of the reduced

quantity.

57.   The computer-readable medium of claim 56, wherein the excess quantity determiner

further comprises:

a determiner of batch objective values, from an effective quantity of at least one product

identified in the request, and from the corresponding production speed of each of

a plurality of product batches in the request;

a determiner of actual total production time of the at least one products in the request,

from the sum of the batch objective values; and

a determiner of a production time shortfall, from the actual total production time, and a

target production time, wherein the production shortfall indicates an excess

quantity.

58.   The computer-readable medium of claim 56, wherein the reduced quantity determiner

further comprises:

an inverse profit probability determiner, wherein the inverse profit probability is

determined from a projected profit of a product in a customer order, and from the

profit of the entire customer order;

a gracefully-decremented quantity determiner, operably coupled to the inverse profit

probability determiner, wherein the gracefully-decremented quantity is

determined for each of the products that the customer indicated a reduced

quantity, and determined from a time shortfall, the inverse profit probability, and

from a decremented number of plurality of products;

an objective-value determiner, operably coupled to the gracefully-decremented quantity

determiner, wherein the objective-value is determined for each product in the

customer order from the gracefully-decremented quantity, and from the previous

objective value;

an actual-quantity determiner, operably coupled to the objective-value determiner,

wherein the actual-quantity is determined from the objective-value, a production

speed of the product, and from the inventory quantity of the product; and

a total-production-time determiner, operably coupled to the actual-quantity determiner,

wherein the total-production-time is determined as the sum of objective value of

each product.

59.   A computer-readable medium comprising:

an excess quantity determiner, that determines that one or more customer requests for a

plurality of products exceed a production capacity of the vendor within a

prescribed time period;

a reduced quantity determiner, operably coupled to the excess quantity determiner, that

yields a reduced quantity, from an inverse probability of profit of the reduced

quantity, wherein the reduced quantity determiner further comprises:

a gracefully-decremented quantity determiner, yielding a reduced quantity,

operably coupled to the inverse profit probability determiner,

wherein the gracefully-decremented quantity is determined for

each of the products that the customer indicated a reduced

quantity, and determined from a time shortfall, the inverse

probability of profit, and from a decremented number of plurality

of products.

APPEAL BRIEF UNDER 37 C.F.R. § 41.37
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60. The computer-readable medium of claim 59, wherein the inverse profit probability is determined from a projected profit of a product in the customer request, and from the profit of the entire customer request.

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EVIDENCE APPENDIX

None.

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RELATED PROCEEDINGS APPENDIX

None.

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